



STATEMENT OF BASIS



**RANSOM ROAD SANDBLAST AREA SWMU 21
NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
KENNEDY SPACE CENTER
BREVARD COUNTY, FLORIDA**

PURPOSE OF STATEMENT OF BASIS

This Statement of Basis (SB) has been developed to inform and give the public an opportunity to comment on a proposed remedy to address contamination at the Ransom Road Sandblast Area (RRSA)¹. A Kennedy Space Center (KSC) remediation team consisting of National Aeronautics and Space Administration (NASA), United States Environmental Protection Agency (EPA), and Florida Department of Environmental Protection (FDEP) has determined that the proposed remedy is cost effective and protective of human health and the environment. However, before implementing the proposed remedy, the KSC remediation team would like to give an opportunity for the public to comment on the proposed remedy. At any time during the public comment period, the public may comment as explained in the "How Do You Participate" section of this SB. After the end of the public comment period, the KSC remediation team will review all comments and issues raised in the comments and determine if there is a need to modify the proposed remedy before implementation.

WHY IS A REMEDY NEEDED?

The results of a Resource Conservation and

Recovery Act (RCRA) Facility Investigation (RFI) indicated that the polychlorinated biphenyls (PCBs) listed in Table 1 are present in soil at the site, and could be potentially harmful to human health.

HOW DO YOU PARTICIPATE?

The KSC remediation team solicits public review and comment on this SB before implementing the proposed remedy. The remedy for the RRSA will eventually be

incorporated into the Hazardous and Solid Waste Amendments (HSWA) permit for the KSC. The public comment period for this SB and proposed remedy will begin on the date of publication for notice of availability of the SB in major local newspapers of general circulation, and end 45 days thereafter. If requested during the comment period, the KSC remediation team will hold a public meeting to respond to any oral comments or questions regarding the proposed remedy. To request a hearing or provide comments, contact the following person in writing within the 45-day comment period:

The Proposed Remedy

The proposed remedy for the RRSA is:

- Implementation of institutional and engineering controls to prohibit residential use and restrict site worker exposure to soils

1. In accordance with RCRA §7004(b), this Statement of Basis summarizes the proposed remedy for NASA's KSC Ransom Road Sandblast Area (RRSA). For detailed information on the site, consult the RRSA RFI report, which is available for review at the information repository located at the NASA Document Library, North Brevard Library, 2121 South Hopkins Avenue, Titusville, FL 32780, telephone: (321) 264-5026.

Mr. Timothy J. Bahr, P.G.
FDEP – Bureau of Waste Cleanup
2600 Blair Stone Road, MS 4535
Tallahassee, FL 32399-2400

The HSWA Permit, SB, and associated administrative file, including the RFI Report, will be available to the public for viewing and copying at:

NASA Document Library
North Brevard Library
2121 South Hopkins Avenue
Titusville, FL 32780
Telephone: (321) 264-5026

To request further information, you may contact one of the following people:

Mr. Harold Williams
Remediation Program Manager
Environmental Program Office
Mail Code: TA-C3
Kennedy Space Center, FL 32899
E-mail: harold.williams-1@ksc.nasa.gov
Telephone: (321) 867-8411

Mr. Timothy R. Woolheater, P.E.
EPA Federal Facilities Branch
Waste Management Division
Sam Nunn Atlanta Federal Center
61 Forsyth Street
Atlanta, GA 30303-8960
E-mail: woolheater.tim@epamail.epa.gov
Telephone: (404) 562-8510

Mr. Timothy J. Bahr, P.G.
FDEP – Bureau of Waste Cleanup
2600 Blair Stone Road, MS 4535
Tallahassee, FL 32399-2400
E-mail: Tim.Bahr@dep.state.fl.us
Telephone: (850) 921-9984

FACILITY DESCRIPTION

NASA established KSC as the primary launch site for the space program. These operations have involved the use of toxic and hazardous materials. Under the RCRA and applicable HSWA permit (Permit No. FL6800014585) issued by the FDEP and/or EPA, KSC was required to perform an investigation to determine the nature and extent of contamination from Solid Waste Management Unit (SWMU) No. 21, the RRSA (Figure 1).

SITE DESCRIPTION AND HISTORY

The RRSA is a NASA-operated facility located on the south side of Ransom Road immediately southwest of the intersection of Ransom Road with Kennedy Parkway South, approximately 1.5 miles south of the intersection of Kennedy Parkway and NASA Parkway. The RRSA SWMU encompasses the entire facility including all improvements within a surrounding fence and adjacent stormwater infiltration ditches where releases may have occurred (Figure 2). The only other hazardous waste site identified within 1,000 meters of the RRSA is the Government Services Administration (GSA) equipment-for-auction storage yard (SWMU No. 10) located immediately west of the RRSA. Wooded areas surround the RRSA and GSA sites to the north, east, and south; orange groves exist to the west.

The RRSA has been used as a sandblasting area and painting facility since 1967. Sandblasting is conducted in Sandblast Facility No. 1 and was formerly conducted outside of the facility to the east. Objects to be sandblasted are reportedly degreased and steam cleaned offsite before delivery to the RRSA, although pressure washing of objects to be sandblasted is occasionally conducted at

the RRSA.

Several construction modifications to the facility since 1992 include: (1) construction of a hazardous waste staging facility to provide secondary containment for hazardous wastes, (2) construction of an impervious asphalt-paved area for the sandblasting area, and (3) construction of an abrasive material recovery facility. The construction activities were designed to ensure compliance with environmental regulations.

The entire site within the fenced boundary, exclusive of drainage ditches, has been paved with asphalt or concrete. Sandblasting is no longer conducted outside the facilities. Other modifications at the RRSA include the removal of a petroleum, oil, and lubricants storage area, and a sand and equipment storage facility, and removal of a former septic tank with installation of a decontamination shower and spray booth water tank that is periodically pumped out for disposal. In 1996, the shop building was expanded to the north, and two storage shelters were installed on the north end of the site (Figure 2).

The area of the RRSA designated as the SWMU is about 200 feet (at its widest) by about 1,000 feet in length and encompasses approximately 4 acres of land.

Investigations conducted at the site include:

- 1990-1994: In response to an EPA request, soil samples were collected at several locations of concern. Additional soil samples were collected at the proposed hazardous waste staging area. Total chromium and lead concentrations were detected above FDEP clean soil criteria (Chapter 62-775, Florida Administrative Code [FAC]). In

preparation for parking area paving and conduit trenching projects, soil samples and a groundwater sample were collected. Lead, chromium, and silver exceeded clean soil criteria. Water and sludge samples were also collected from an abandoned septic tank. No contaminants were detected above screening criteria. Soil and groundwater samples were also collected to determine if contaminated soil had been redistributed during grading of the site prior to paving operations. Aluminum and iron concentrations exceeded Florida secondary drinking standards in groundwater samples, and arsenic and total recoverable petroleum hydrocarbon (TRPH) concentrations exceeded clean soil criteria.

- 1995-1999: An RFI was conducted. Samples of surface and subsurface soil, sediment, surface water, and groundwater were collected and analyzed. Results of these analyses were used to determine potential increased human health and ecological risks. A human health risk assessment (HHRA) indicated that groundwater containing bis(2-ethylhexyl)phthalate (BEHP) would result in an unacceptable increased human health risk if the groundwater was used as a source of drinking water. Two metals (iron and aluminum) also were detected above secondary drinking water standards. Soil and sediment samples collected near and in surrounding drainage ditches contained PCBs above risk-based criteria. PCBs were detected at a concentration (4.0 milligrams per kilogram [mg/kg]) that exceeded FDEP industrial site cleanup target level (2.1 mg/kg) in one soil sample collected on the north side of Sandblast Facility No.

2. Surface water samples from the drainage ditches contained BEHP above risk-based criteria.

- 2001: Supplemental groundwater samples were collected to confirm the presence or absence of BEHP, TRPH, iron, and aluminum. None of the analytes were detected above applicable EPA/FDEP Groundwater Cleanup Target Levels (GCTLs, Chapter 62-777 FAC).

SUMMARY OF SITE RISK

As part of the RFI activities, risk assessments were completed in accordance with NASA's Risk Assessment Decision Process Document for KSC, Florida. The HHRA was performed in accordance with EPA guidance (RAGS, EPA 1989 and subsequent EPA Region 4 Guidance). A Phase I ecological risk assessment (ERA) was performed in accordance with the EPA's "Ecological Risk Assessment Guidance for Superfund: Process for Designing and Conducting Ecological Risk Assessments" dated 1997.

The HHRA showed the estimated excess lifetime cancer risk for the hypothetical future child resident was determined to be no greater than 2 in 100,000, which is within EPA's acceptable range of 1 in a million to 1 in 10,000 but above FDEP's risk goal of 1 in a million. The main contaminants contributing to this cancer risk were PCBs in soil.

The ERA identified several constituents in soil, surface water and sediment that could potentially affect ecological receptors exposed to these media. Consequently, the KSC remediation team decided to implement interim corrective measures

(ICMs) as documented in an appendix of the RFI. Sediment from all of the ditches that surround the RRSA and adjacent GSA yard was excavated and properly disposed. Soil outside the southeast corner of the site (near former outside sandblasting activities) was also excavated and disposed. These ICMs eliminated exposure pathways to receptors in the perimeter ditch system, and minimized exposure pathways for receptors to soil contamination.

Chemicals of Concern (COCs) identified for human health risk following the RFI, supplemental sampling activities, and ICMs, were:

- Soil: PCBs

PCBs were detected at a concentration exceeding FDEP/EPA industrial cleanup target level in one soil sample (that was not removed by ICMs) collected from under asphalt pavement. Therefore, land use controls are proposed to prohibit industrial site workers access to contaminated soils under the pavement, in an area bounded by samples that did not contain PCBs, at concentrations above industrial cleanup target levels. Also, PCBs have been detected at concentrations over residential cleanup target levels in soils at the northwest corner of the site adjacent to the GSA SWMU. Therefore, controls are proposed to prohibit residential use of the site within the security fence.

WHAT ARE THE REMEDY OBJECTIVES?

The remedy is to protect humans from exposure to soil contaminants that exceed FDEP/EPA clean-up target levels by limiting access to industrial workers. Table 1 cites the COC present at the RRSA. The

first column lists the chemical name, the second column lists the range of concentrations detected in the soil at RRSA during the RFI, and the last column presents the EPA/FDEP cleanup target level.

Table 1

Site-Related Chemical of Concern (COC)	Range of Detections	Cleanup Target Level ¹
Soil (mg/kg)		
PCBs ²	0.024 to 4.0	0.5 / 2.1

1 Florida Administrative Code 62-777 for residential/ industrial use exposure.

2 Polychlorinated biphenyls.

REMEDIAL ALTERNATIVES FOR THE RRSA

Remedial alternatives are different combinations of plans or technologies to restrict access, and to contain or treat contamination to protect public health and the environment. Because of the very limited nature of the soil contamination, only one alternative was considered for the RRSA:

- Land Use Controls (LUCs)

Land Use Controls:

Institutional and engineering LUCs would be implemented to limit access to site soils. Residential use would be restricted in the area that is inside the existing security fence

that surrounds the facility. Access to soil with PCB concentrations exceeding the industrial cleanup target level would be restricted by pavement, and the pavement would be maintained (Figure 2). NASA, EPA, and the FDEP have entered into a Memorandum of Agreement (MOA) that outlines how institutional controls will be managed at NASA^{2/}. The MOA requires periodic site inspection, condition certification and agency notification.

EVALUATION OF REMEDY

The remedy was evaluated to determine if it will comply with EPA's four threshold, and five balancing criteria for corrective measures. The four threshold criteria are:

- overall protection of human health and the environment;
- attain media cleanup standards;
- control the sources of releases; and
- comply with standards for management of wastes.

The five balancing criteria are:

- long term reliability and effectiveness;
- reduction in the toxicity, mobility, or volume of wastes;
- short term effectiveness;
- implementability; and
- cost.

2/ By separate MOA effective February 23, 2001, with the EPA and FDEP, KSC, on behalf of NASA, agreed to implement Center-wide, certain periodic site inspection, condition certification and agency notification procedures designed to ensure the maintenance by Center personnel of any site-specific LUCs deemed necessary for future protection of human health and the environment. A fundamental premise underlying execution of that agreement was that through the Center's substantial good faith compliance with the procedures called for herein, reasonable assurances would be provided to EPA and FDEP as to the permanency of those remedies which included the use of specific LUCs.

Although the terms and conditions of the MOA are not specifically incorporated or made enforceable herein by reference, it is understood and agreed by NASA KSC, EPA and FDEP that the contemplated permanence of the remedy reflected herein shall be dependent upon the Center's substantial good faith compliance with the specific LUC maintenance commitments reflected herein. Should such compliance not occur or should the MOA be terminated, it is understood that the protectiveness of the remedy concurred in may be reconsidered and that additional measures may need to be taken to adequately ensure necessary future protection of human health and the environment.

LUCs meets each of the threshold criteria and were determined to be the best overall approach with respect to the balancing criteria.

WHAT IMPACTS WOULD THE REMEDY HAVE ON THE LOCAL COMMUNITY?

There would be no impacts to the local community because administrative actions to limit access to the site are consistent with current operating procedures.

WHY DOES THE KSC REMEDIATION TEAM RECOMMEND THIS REMEDY?

The team recommends the proposed remedy because it is a cost effective way to prevent exposure to contaminants. The proposed remedy meets EPA's threshold and balancing criteria for corrective measures.

NEXT STEPS

The KSC Remediation Team will review all comments on this SB to determine if the proposed remedy needs modification prior to implementation and prior to incorporating the proposed remedy to KSC's HSWA permit. If the proposed remedy is determined to be appropriate for implementation, then a Land Use Control Implementation Plan (LUCIP) will be developed to incorporate the institutional controls.